



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/589,888

08/18/2006

Hui Li

1454.1727

2449

21171 7590 07/28/2008

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

MAPA, MICHAEL Y

ART UNIT

PAPER NUMBER

4113

MAIL DATE

DELIVERY MODE

07/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,888	LI, HUI	
	Examiner	Art Unit	
	Michael Mapa	4113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/18/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 08/18/06 has been considered by the examiner.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Although the claimed “computer readable medium storing a computer program” is tangible, the format of a means + function claim without any tangible components to perform the claimed steps, makes claim 19 directed toward non-statutory subject matter. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 9-11, 14 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Rogard et al. (US Patent 7062294 herein after referenced as Rogard.)

Regarding claim 9, Rogard discloses a downlink transmission system and method in a wireless data communications system having a base station with a smart antenna system. Rogard discloses the communications system having a base station(102) with a smart antenna system(104) providing service to multiple user terminals(105-108) in a cell [Fig. 1] which reads on claimed "radio communication system comprising mobile stations and network-side devices, the network-side devices comprising network-side antennas distributed over a plurality of positions within a radio cell". Rogard also discloses the antenna elements being used to transmit downlink data on a downlink channel to a remote terminal [Column 4, Lines 63-65] and to receive signals for use on determining the uplink/downlink strategy [Column 4, Lines 57-61] which reads on claimed "the signaling message being transmitted via at least one network-side antenna," and claimed "the response message being received by at least some of the network-side antennas;". Rogard continues to disclose having the base station first send a paging message and the user terminal responding with a random access request [Column 24, Lines 14-16] which reads on claimed "transmitting a signaling message which requests a mobile station to transmit a response message," and claimed "the signaling message being transmitted to the mobile station and being used exclusively for requesting the response message;". Rogard discloses the base station responding with an access assignment message that includes the uplink and downlink information to the user terminal after receiving the random access request

[Column 24, Lines 15-18] which reads on claimed “receiving the response message from the mobile station,” and claimed “after receiving the response message, transmitting a user data message to the mobile station via a plurality of transmitting network-side antennas,”. Rogard also discloses basing the downlink strategy based on the signals received from the antenna elements [Column 4, Lines 59-61] which reads on claimed “the transmitting network-side antennas being selected from the plurality of network-side antennas based on which network- side antennas received the response message from the mobile station.”

Regarding claim 10, Rogard discloses everything claimed as applied above (see claim 9) In addition, Rogard also discloses the page towards the user terminal to be transmitted repeatedly to increase the probability that a user terminal at an unknown location receives the page. [Column 16, Lines 46-50] which reads on claimed “the signaling message is sent at regular time intervals.”

Regarding claim 11, Rogard discloses everything claimed as applied above (see claim 9) In addition, Rogard also discloses rescheduling and repeating the transmission of the page in the future after a first unsuccessful page [Column 16, Lines 7-11] which reads on claimed “the signaling message is transmitted only when a certain period of time elapsed since the last transmission of a message of the same type as the signaling message.”

Regarding claim 14, Rogard discloses everything claimed as applied above (see claim 9), In addition Rogard discloses transmitting downlink data via the antenna elements [Fig. 1, Column 4, Lines 63-65 of Rogard] which reads on claimed “the

signaling message is transmitted from a plurality of network-side antennas, and the plurality of network-side antennas used to transmit the signaling message all belong to a same radio cell.”

Regarding claim 18, Rogard discloses a downlink transmission system and method in a wireless data communications system having a base station with a smart antenna system. Rogard discloses the communications system having a base station(102) with a smart antenna system(104) providing service to multiple user terminals(105-108) in a cell [Fig. 1] which reads on claimed "radio communication system comprising mobile stations and network-side devices, the network-side devices comprising network-side antennas distributed over a plurality of positions within a radio cell". Rogard also discloses the antenna elements being used to transmit downlink data on a downlink channel to a remote terminal [Column 4, Lines 63-65] and to receive signals for use on determining the uplink/downlink strategy [Column 4, Lines 57-61] which reads on claimed "the signaling message being transmitted via at least one network-side antenna," and claimed "the response message being received by at least some of the network-side antennas;" Rogard continues to disclose having the base station first send a paging message and the user terminal responding with a random access request [Column 24, Lines 14-16] which reads on claimed "means for receiving via at least some of the network-side antennas a response message from a mobile station or for receiving information about receipt of the response message from the mobile station, which response message was received via at least some of the network-side antennas, the response message being received in response to a signaling

Art Unit: 4113

message sent to and received at the mobile station via at least one network-side antenna, the signaling message being transmitted exclusively for the purpose of requesting the response message;” Rogard also discloses basing the downlink strategy based on the signals received from the antenna elements [Column 4, Lines 59-61] which reads on claimed “means for choosing transmitting network-side antennas from the plurality of network-side antennas, the transmitting network-side antennas being chosen based on which network-side antennas received the response message from the mobile station;” Rogard also discloses the base station responding with an access assignment message that includes the uplink and downlink information to the user terminal after receiving the random access request [Column 24, Lines 15-18] which reads on claimed “means for causing a user data message to be transmitted to the mobile station via the transmitting network-side antennas”.

Regarding claim 19, Rogard discloses a downlink transmission system and method in a wireless data communications system having a base station with a smart antenna system. Rogard discloses the communications system having a base station(102) with a smart antenna system(104) providing service to multiple user terminals(105-108) in a cell [Fig. 1] which reads on claimed "radio communication system comprising mobile stations and network-side devices, the network-side devices comprising network-side antennas distributed over a plurality of positions within a radio cell". Rogard also discloses having a control computer(210) controlling the smart antenna processing and a spatial processor (208) which comprise one or more digital signal processing devices for achieving the uplink and downlink smart antenna

Art Unit: 4113

processing and control [Column 4, Lines 33-37] which reads on claimed "A computer readable medium storing a computer program for a network- side device in a radio communications system," Rogard also discloses the antenna elements being used to transmit downlink data on a downlink channel to a remote terminal [Column 4, Lines 63-65] and to receive signals for use on determining the uplink/downlink strategy [Column 4, Lines 57-61] which reads on claimed "the signaling message being transmitted via at least one network-side antenna," and claimed "the response message being received by at least some of the network-side antennas;" Rogard continues to disclose having the base station first send a paging message and the user terminal responding with a random access request [Column 24, Lines 14-16] which reads on claimed "means for receiving via at least some of the network-side antennas a response message from a mobile station or for receiving information about receipt of the response message from the mobile station, which response message was received via at least some of the network-side antennas, the response message being received in response to a signaling message sent to and received at the mobile station via at least one network-side antenna, the signaling message being transmitted exclusively for the purpose of requesting the response message;" Rogard also discloses basing the downlink strategy based on the signals received from the antenna elements [Column 4, Lines 59-61] which reads on claimed "means for choosing transmitting network-side antennas from the plurality of network-side antennas, the transmitting network-side antennas being chosen based on which network-side antennas received the response message from the mobile station;" Rogard also discloses the base station responding with an access

assignment message that includes the uplink and downlink information to the user terminal after receiving the random access request [Column 24, Lines 15-18] which reads on claimed "means for causing a user data message to be transmitted to the mobile station via the transmitting network-side antennas".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogard et al. (US Patent 7062294 herein after referenced as Rogard.) in view of Lim et al. (US Patent 7209764 herein after referenced as Lim).

Regarding claims 12 and 17, Rogard discloses everything claimed as applied above (see claim 9 and claim 17), In addition Rogard discloses transmitting downlink data via the antenna elements [Column 4, Lines 63-65 of Rogard] which reads on claimed " the signaling message is transmitted via the network-side antennas of the radio cell." Rogard fails to explicitly recite the claimed limitation of "transmitted via all network-side antennas". However, the examiner maintains that it was well known in the art for the system and method of Rogard to incorporate the method of transmitting via every antenna as taught by Lim.

Lim discloses a node B transmitting a pilot signal to every antenna, which reads on claimed “transmitted via all network-side antennas”, to measure a channel of the UE, resulting in the UE measuring the channel using the pilot signal for every antenna and finds an optimal weighted value based on the measured channel information [Column 2, Lines 39-43 of Lim].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system and method of Rogard by specifically having the paging signal sent thru all the antenna elements, as taught by Lim, for the purpose of measuring the signal strength received at the mobile device from each antenna element and thereby optimizing the system by gaining the information on which antenna element is best to use for communicating with the mobile device.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rogard et al. (US Patent 7062294 herein after referenced as Rogard.) in view of Lim et al. (US Patent 7209764 herein after referenced as Lim), and further in view of Angus et al. (US Patent 6097969 herein after referenced as Angus.)

Regarding claim 13, Rogard discloses everything claimed as applied above (see claim 9) In addition, Rogard discloses the communication system to have a plurality of cells each with a plurality of base station and antennas [Fig. 1] which reads on claimed “the radio communication system has a plurality of cells, each with a plurality of network- side antennas distributed therein.” Rogard discloses transmitting downlink data via the antenna elements [Column 4, Lines 63-65 of Rogard] which reads on

claimed "the signaling message is transmitted via the network-side antennas of the radio cell." Rogard fails to explicitly recite the claimed limitation of "transmitted via all network-side antennas". However, the examiner maintains that it was well known in the art for the system and method of Rogard to incorporate the method of transmitting via every antenna as taught by Lim.

Lim discloses a node B transmitting a pilot signal to every antenna, which reads on claimed "transmitted via all network-side antennas", to measure a channel of the UE, resulting in the UE measuring the channel using the pilot signal for every antenna and finds an optimal weighted value based on the measured channel information [Column 2, Lines 39-43 of Lim].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system and method of Rogard by specifically having the paging signal sent thru all the antenna elements, as taught by Lim, for the purpose of measuring the signal strength received at the mobile device from each antenna element and thereby optimizing the system by gaining the information on which antenna element is best to use for communicating with the mobile device.

Rogard in view of Lim fails to explicitly recite the claimed limitation of "the signaling message is transmitted via all network-side antennas of all radio cells." However, the examiner maintains that it was well known in the art for the system and method of Rogard in view of Lim to incorporate the method of all the base stations transmitting the paging message as taught by Angus.

Angus discloses a system and method wherein all of the base stations transmit all of the forward-channel messages to maximize the probability that each paging message reaches the targeted paging unit [Column 11, Lines 21-35 of Angus]

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system and method of the combination of Rogard and Lim to incorporate the system and method of all the base stations transmitting the paging message as taught by Angus for the purpose of maximizing the probability and likelihood that the paging message will reach the intended user terminal.

8. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogard et al. (US Patent 7062294 herein after referenced as Rogard.) in view of Newson et al. (US Patent 6320898 herein after referenced as Newson).

Regarding claim 15, Rogard discloses everything claimed as applied above (see claim 9). In addition Rogard discloses transmitting downlink data via the antenna elements [Fig. 1, Column 4, Lines 63-65 of Rogard] which reads on claimed “the signaling message is transmitted from a plurality of network-side antennas;” as well as disclosing the communication system to have a plurality of cells each with a plurality of base station and antennas [Fig. 1] which reads on “the radio communication system has a plurality of cells, each with a plurality of network- side antennas distributed therein,” Rogard fails to explicitly recite the claimed limitation of “the plurality of network-side antennas used to transmit the signaling message reside in at least two different radio cells.” However, the examiner maintains that it was well known in the art for the system

and method of Rogard to incorporate the improved CDMA base station as taught by Newson.

In a similar field of endeavor, Newson discloses a system and method for a CDMA pseudo-smart antenna selection using an improved CDMA base station. Newson discloses the CDMA base station to have a handoff controller which selects the optimum antenna combination according to the quality of the reverse-link reception from the mobile station [Column 6, Lines 15-18 of Newson]. Newson also discloses "soft handoff" which is a mobile station moving from one base station to another different base station [Column 2, Lines 42-44 of Newson] which reads on claimed "the plurality of network-side antennas used to transmit the signaling message reside in at least two different radio cells."

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system and method of Rogard to incorporate the improved CDMA base station as taught by Newson. The motivation for combining being to enable dynamic selection of antennas and thus minimizing transmission time and optimizing the power budget of the base station [Column 7, Lines 16-20 of Newson]

Regarding claim 16, Rogard in view of Newson discloses everything claimed as applied above (see claim 15). In addition, Rogard and Newson discloses the base station sending a paging message wherein the user terminal responds with a random access request and wherein the base station responds with an access assignment message to use for traffic communication [Column 24, Lines 14-18 of Rogard] which reads on claimed "the signaling message identifies the radio cell in which the network-

Art Unit: 4113

side antenna resides," as well as disclosing the user terminal to send an acknowledgement signal which includes training data and/or identification data for use by its associate base station in determining an advantageous smart antenna processing strategy [Column 24, Lines 21-25 of Rogard] which reads on claimed "the response message identifies the radio cell or radio cells from which the mobile station received the signaling message."

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mapa whose telephone number is (571)270-5540. The examiner can normally be reached on MONDAY TO THURSDAY 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jefferey Harold can be reached on (571)272-7519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4113

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Mapa/

Examiner, Art Unit 4113

/Jefferey F Harold/

Supervisory Patent Examiner, Art Unit 4113